

Serial No. 09/523,350
October 16, 2002
Page 3

REMARKS

Claims 1, 2, 5, 6, 8, 10-16, 18 and 20 are pending in this application. By this Amendment, Applicants amend Claims 1, 5 and 11 and cancel claims 3, 4, 7, 9, 17 and 19.

Claims 7, 9, 17 and 19 were objected to as being in improper dependent form for failing to further limit the subject matter of the previous claim. Applicants have canceled claims 7, 9, 17 and 19. Accordingly, Applicants respectfully request reconsideration and withdrawal of this objection.

Claims 5 and 15 were rejected under 35 U.S.C. § 112, second paragraph, for allegedly being indefinite. The Examiner alleged that the recitation of "a bar is attached to each of a pair of sides of the stacked flattened ring compact bodies" is indefinite because it is unclear if the bar is attached to both left and right sides or top and bottom sides or all sides. Although the above-identified recitation is broad enough to read on a bar which is attached to any of a variety of sides, Applicants respectfully submit that this does not render the claim indefinite. Accordingly, Applicants respectfully request reconsideration and withdrawal of this rejection.

Claims 1-4, 6, 8, 10-14, 16, 18 and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicants' Admitted Prior Art (AAPA) in view of Delvinquier et al. (U.S. 6,120,916). And claims 5 and 15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicants' Admitted Prior Art (AAPA) in view of Delvinquier et al., and further in view of Shirahata (U.S. 6,005,468). Applicants respectfully traverse these rejections.

Claim 1 has been amended to recite:

**"A method of firing magnetic cores comprising the steps of:
providing a plurality of flattened-ring compact bodies made of a
magnetic material and having flattened through holes;
attaching a powder made of an organic material to an outer
surface of the plurality of flattened-ring compact bodies;
arranging the plurality of flattened-ring compact bodies adjacently
so that axes of the flattened through-holes are vertically arranged;
firing the flattened-ring compact bodies while the powder is
interposed between the adjacent flattened-ring compact bodies, such
that said powder is vaporized during the firing step; and
separating each of said plurality of flattened-ring compact**

Serial No. 09/523,350
October 16, 2002
Page 4

bodies from the adjacently arranged plurality of flattened-ring compact bodies." (Emphasis added)

Claim 11 recites features that are similar to the features recited in claim 1, including the emphasized features.

The present claimed invention provides a method of firing magnetic cores in which firing is performed with a high degree of reliability and mass production is enabled. Specifically, the powder attached to the surface of the compact bodies functions as a spacer between the compact bodies. Therefore, the compact bodies can be arranged in a container by stacking them together, thus, facilitating the setting operation. When the compact bodies are fired, the adjacent compact bodies are not brought into direct contact with each other, and thus, inconveniences such as reactions in the contact surface therebetween, adherence, and breaks do not occur.

The Examiner acknowledged that AAPA fails to teach or suggest a step of attaching a powder to a surface of the flattened-ring compact bodies. However, the Examiner alleged that Delvinquier et al. teaches a process of making a composite of magnetic material including the steps of stacking a toroidal core (10) made of magnetic material so that an axis of each of the flattened-ring compact bodies after stacking is arranged and attaching an organic material (20) to an outer surface of the plurality of the toroidal cores in order to break easily after a sintering process (col. 5, lines 1-17). Thus, the Examiner concludes that it would have been obvious to modify a flattened-ring compact body of AAPA by adding a step of attaching an organic metallic powder on the surface of the composite structure as taught by Delvinquier et al. Applicants respectfully disagree.

In contrast to the present claimed invention, Delvinquier et al. is directed to a method of manufacturing a composite magnetic material in which a fluid binder is applied to the toroidal cores 10 and then hardened (see col. 5, lines 1-20). Delvinquier et al. fails to teach or suggest any organic powder, and certainly fails to teach or suggest "attaching a powder made of an organic material to an outer surface of the plurality of flattened-ring compact bodies" and "firing th flattened-ring compact bodies while the powder is interposed between the adjacent flattened-ring compact bodies,

Serial No. 09/523,350
October 16, 2002
Page 5

such that said powder is vaporized during the firing step" (emphasis added) as recited in the present claimed invention.

Furthermore, in col. 5, lines 8-17, Delvinquier et al. teaches that "to improve the performance characteristics of a core of this kind it is possible, after having stacked the wafers 10, to compress them so as to break them into pieces 1" and that "the binder fills the spaces firstly between the broken pieces 1 of one and the same toroid and secondly between the different strata 2 of the toroids". Thus, contrary to the Examiner's allegations, Delvinquier et al. fails to teach or suggest attaching an organic material (20) to an outer surface of the plurality of the toroidal cores in order to break easily after a sintering process, and certainly fails to teach or suggest "separating each of said plurality of flattened-ring compact bodies from the adjacently arranged plurality of flattened-ring compact bodies" as recited in the present claimed invention.

Shirahata is relied upon merely to teach a bar attached to each of a pair of sides of stacked compact bodies. Shirahata clearly fails to teach or suggest "attaching a powder made of an organic material to an outer surface of the plurality of flattened-ring compact bodies", "firing the flattened-ring compact bodies while the powder is interposed between the adjacent flattened-ring compact bodies, such that said powder is vaporized during the firing step" and "separating each of said plurality of flattened-ring compact bodies from the adjacently arranged plurality of flattened-ring compact bodies" as recited in the present claimed invention.

Accordingly, Applicants respectfully submit that AAPA, Delvinquier et al. and Shirahata, taken individually or in combination, fail to teach or suggest the unique combination and arrangement of method steps recited in claims 1 and 11 of the present application.

In view of the foregoing remarks, Applicants respectfully submit that claims 1 and 11 are allowable. Claims 2, 5, 6, 8, 10, 12-16, 18 and 20 depend upon claims 1 and 11, and are therefore allowable for at least the reasons that claims 1 and 11 are allowable.

In view of the foregoing Remarks, Applicants respectfully submit that this application is in condition for allowance. Favorable consideration and prompt allowance are respectfully solicited.

Serial No. 09/523,350
October 16, 2002
Page 6

To the extent necessary, Applicants petition the Commissioner for a One-month extension of time, extending to October 17, 2002, the period for response to the Office Action dated June 17, 2002.

The Commissioner is authorized to charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1353.

Respectfully submitted,

Date: October 16, 2002


Attorneys for Applicant

Joseph R. Keating
Registration No. 37,368

Christopher A. Bennett
Registration No. 46,710

KEATING & BENNETT LLP
10400 Eaton Place, Suite 312
Fairfax, VA 22030
Telephone: (703) 385-5200
Facsimile: (703) 385-5080

Serial No. 09/523,350

October 16, 2002

Page 7

VERSION WITH MARKINGS SHOWING CHANGES MADE

1. A method of firing magnetic cores comprising the steps of:
 - providing a plurality of flattened-ring compact bodies made of a magnetic material and having flattened through holes;
 - attaching a powder made of an organic material to an outer surface of the plurality of flattened-ring compact bodies;
 - arranging the plurality of flattened-ring compact bodies adjacently so that axes of the flattened through-holes are vertically arranged; [and]
 - firing the flattened-ring compact bodies while the powder is interposed between the adjacent flattened-ring compact bodies such that said powder is vaporized during the firing step; and
 - separating each of said plurality of flattened-ring compact bodies from the adjacently arranged plurality of flattened-ring compact bodies.
5. The method according to claim 3, wherein [after the plurality of flattened-ring compact bodies are stacked on each other in a vertical direction, the plurality of flattened-ring compact bodies are arranged so that the axes of the flattened through-holes are vertically arranged while maintaining the stacked state and] a bar is attached to each of a pair of sides of the stacked flattened-ring compact bodies.
11. A method of firing magnetic cores comprising the steps of:
 - providing a plurality of thin compact bodies made of a magnetic material and having flattened through holes;
 - attaching a powder made of an organic powder to an outer surface of the plurality of thin compact bodies;
 - vertically arranging the plurality of thin compact bodies adjacently; [and]
 - firing the thin compact bodies while the powder is interposed between the adjacent thin compact bodies such that said powder is vaporized during the firing step; and

Serial No. 09/523,350
October 16, 2002
Page 8

separating each of said plurality of thin compact bodies from the adjacently
arranged plurality of thin compact bodies.